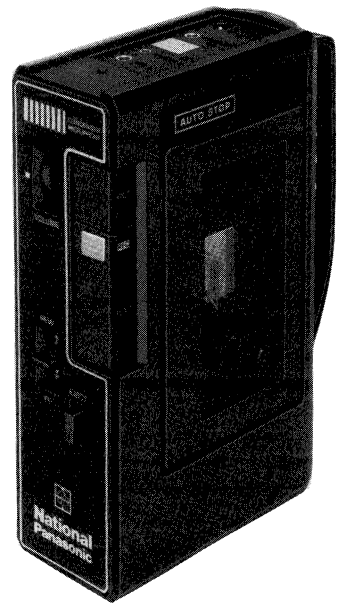
ORDER NO. ARD-7608080C

Service Manual

Portable Cassette

RQ-314S-E

Solid State Cassette Tape Recorder



RQ-314 MECHANISM SERIES

05290300 91004988 38
SM-RQ314S 1 ST
SERVICE MANUAL

Specifications (Catalog specifications for sales)

Power requirement:	AC; 90～109/110～125/200～219/220～250V, 50/60Hz (with AC adaptor/charger RP-667 included) Battery; 6V (four- R6 size dry batteries) Car/boat battery; with optional car/boat adaptor RP-917 Rechargeable battery; with optional rechargeable battery pack RP-9214
Motor:	Electrical governor motor (DC)
Power output:	400mW ··· RMS (max.)
Frequency range:	80～10,000Hz
Recording system:	AC bias
Operation:	Pushbutton one-touch recording with Auto-Stop mechanism
Tape speed:	4.8cm/s
Program time:	1 hour with C-60 cassette tape
Fast forward time:	Approx. 100 seconds with C-60 cassette tape
Rewind time:	Approx. 90 seconds with C-60 cassette tape
Track system:	2-track monaural recording and playback
Input:	MIC; sensitivity 0.25mV/applicable microphone impedance 200Ω～600Ω (recommended microphone WM-2213N) DC IN; 6V
Output:	MONITOR; 8Ω REMOTE; for start and stop at hand
Speaker:	6.5cm PM dynamic speaker
Dimensions:	10.1cm(W)×16.6cm(H)×4.9cm(D)
Weight:	650g

Specifications are subject to change without notice.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

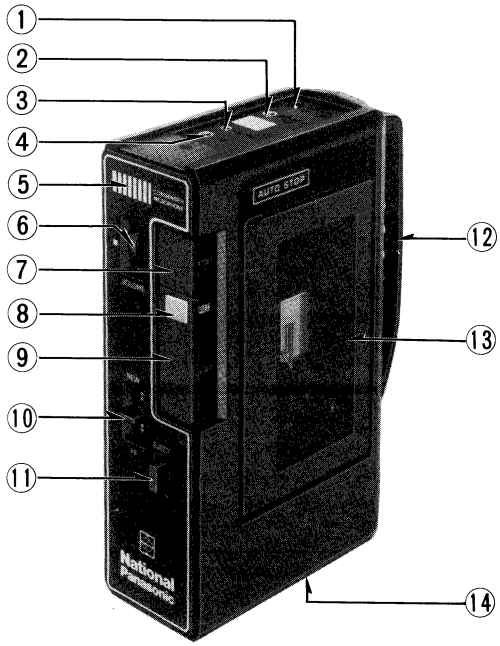


Fig. 1

① DC in jack
② Monitor jack
③ Remote jack
④ External microphone jack
⑤ Built-in microphone
⑥ Volume control
⑦ Stop button
⑧ Record button
⑨ Playback button
⑩ Fast forward/rewind control
⑪ Ejection button
⑫ Handle
⑬ Cassette compartment cover
⑭ Battery compartment

DISASSEMBLY INSTRUCTIONS

Screw size A: 2×8
B: 2×16

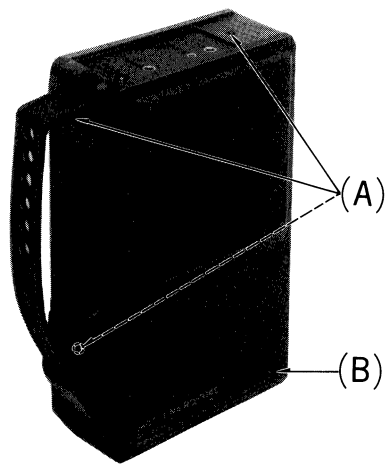


Fig. 2

Screw size C: 2×8
D: 2×16
E: 2×8

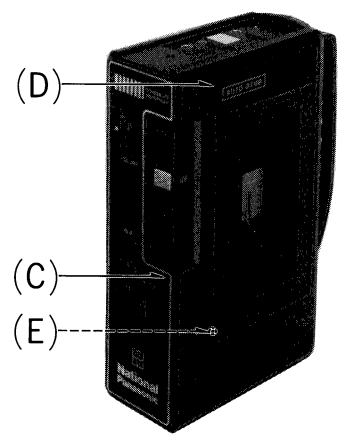


Fig. 3

Screw size F: 2×8

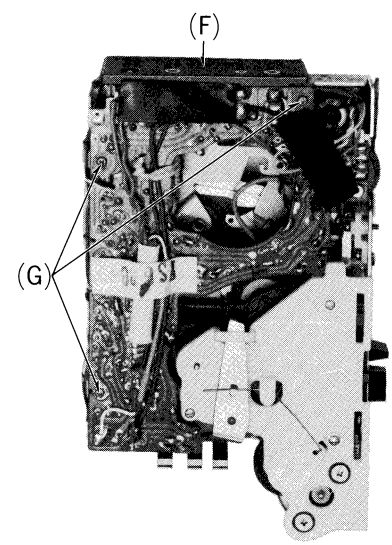


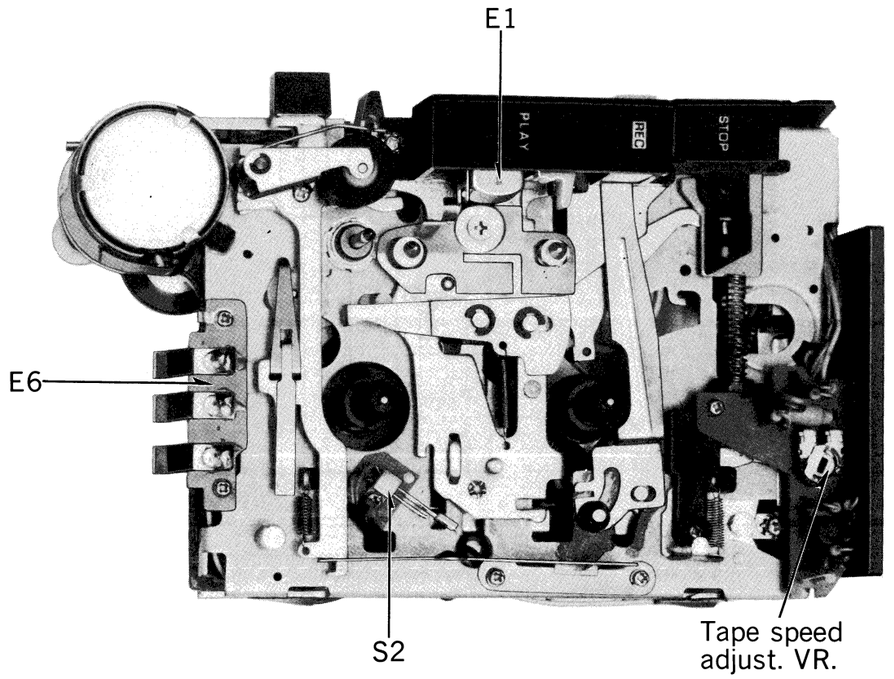
Fig. 4

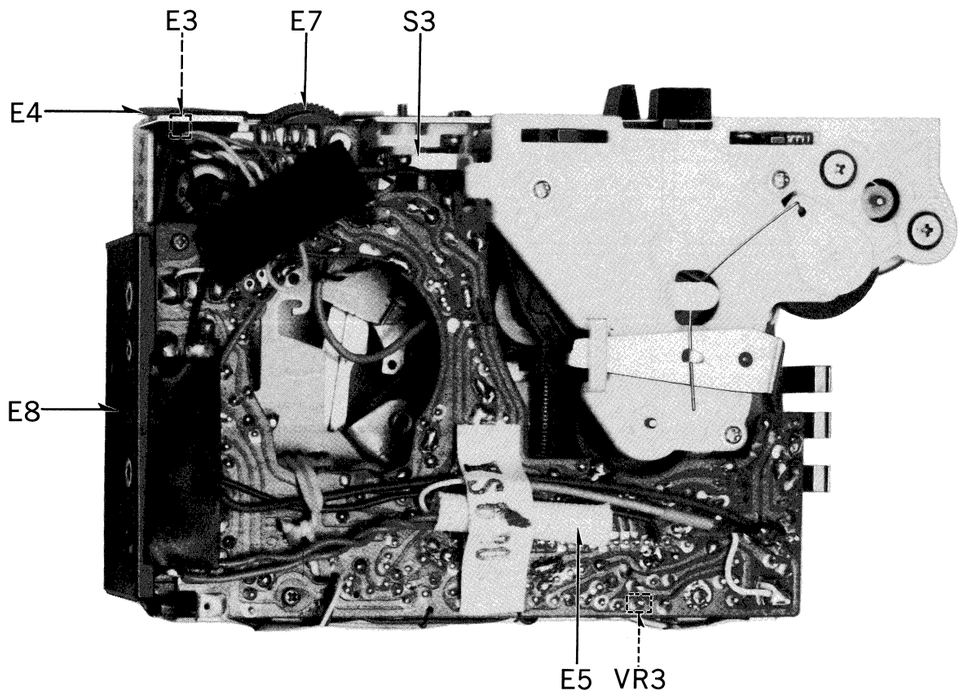
Procedure	To remove ——.	Remove ——.	Pcs.	Shown in fig. ——.
1	Rear case	(A), (B), (C)	(3), (1), (1)	2, 3
2	Front case	(D), (E)	(1), (1)	3
3	Printed circuit board	(F), (G)	(1), (3)	4

STANDARD VALUE TO TEST

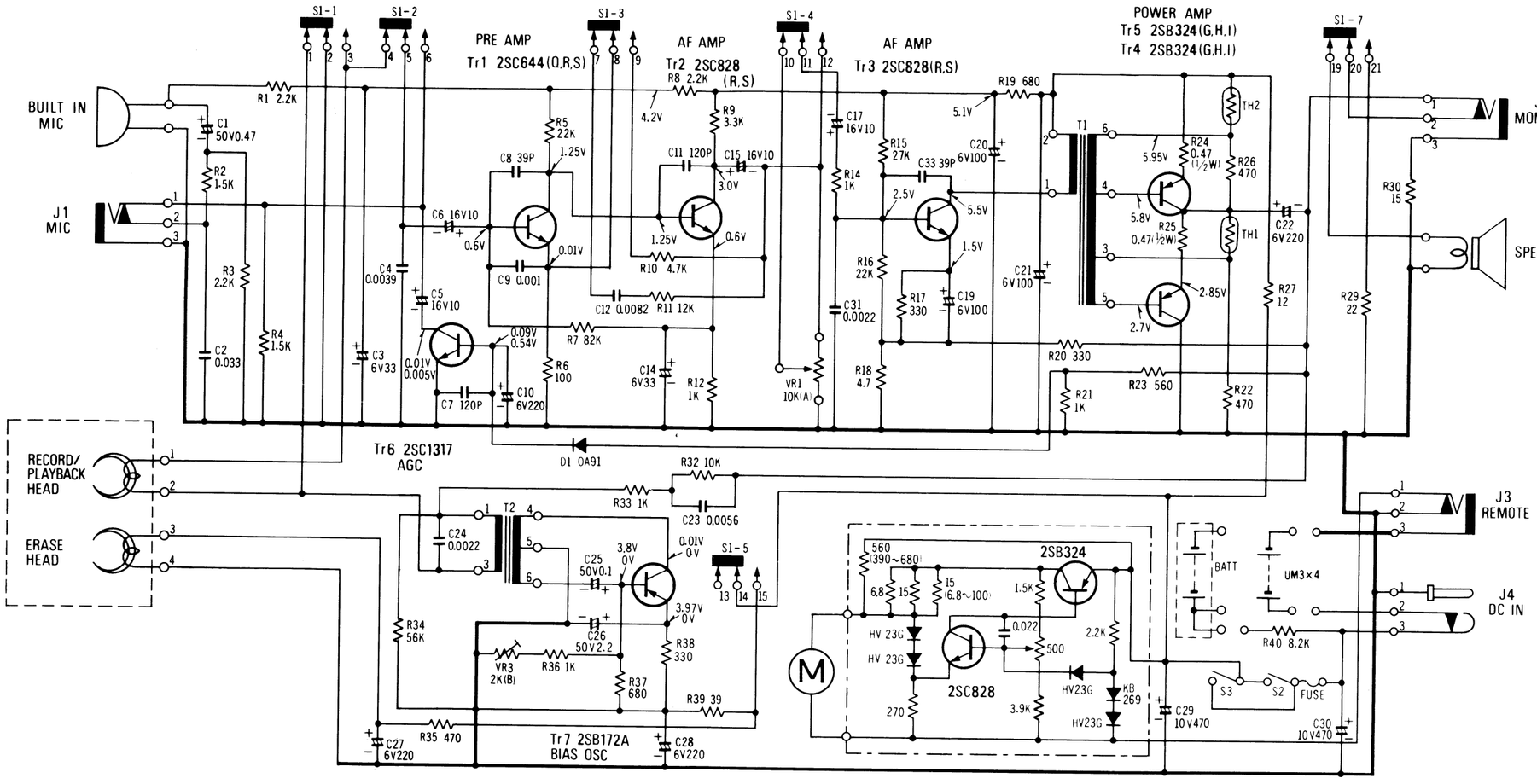
ITEM	VALUE	REMARKS
Pressure of pressure roller	400±50 gr	If out of tolerance, adjust it by bending the pressure roller spring (M48).
Takeup tension	55±15 gr-cm	———
Detecting piece tension	50±15 gr	———
Tape speed accuracy	±2%	If out of tolerance, adjust it by VR shown in Electrical part location.
Wow & flutter	0.45% RMS	———
Bias oscillation frequency	42±5 kHz	———
Erase current	7.6±1 mA	———
Recording bias current	0.75±0.05 mA	If out of tolerance, adjust VR3 shown in Electrical part location.
Recording level	MIC 1 kHz: −36±3 dB	To obtain 55μA of recording current through the recording head. Stop the bias oscillation by unsoldering point A shown in circuit board on page 4.
Playback amplifier gain	78±3 dB	Input to head lead wire after removing the head; −78±3 dB Output across speaker: 1 V
Overall gain	1.5 V or more	Record 1 kHz tone (−36 dB), playback, and measure the output at the both ends of speaker. Playback volume: maximum Power supply: DC 6 V
Overall frequency response	1 kHz: 0 dB 150 Hz: −4±6 dB 5 kHz: −3±6 dB	Recording level: −46 dB

ELECTRICAL PARTS LOCATION





SCHEMATIC DIAGRAM MODEL RQ-314S-E

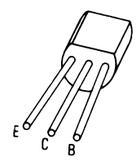


NOTE:

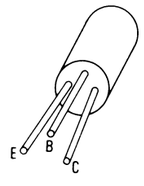
1. S1 .....Record/playback select switch (shown in playback position).
2. S2 .....Power ON/OFF switch.
3. S3 .....FF/REW switch.
4. VR1.....Volume control.
5. VR3.....Bias current adjustment VR.
6. Resistor values are ohms (Ω), 1/4 watt unless specified otherwise.
   K=1,000Ω.
7. Capacitor values are in microfarads (μF) unless specified otherwise.
   P=Pico-farads.
8. All voltage values are under no signal condintion with volume at minimum position.
   Voltage indicated by a single value is common to record and playback. And for two different values, the upper value is for record, and the lower is for playback.

TERMINATIONS (BOTTOM VIEW)

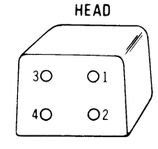
2SC644
2SC828
2SC1317



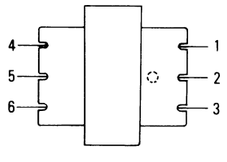
2SB324
2SB172



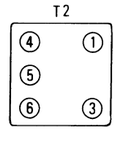
HEAD



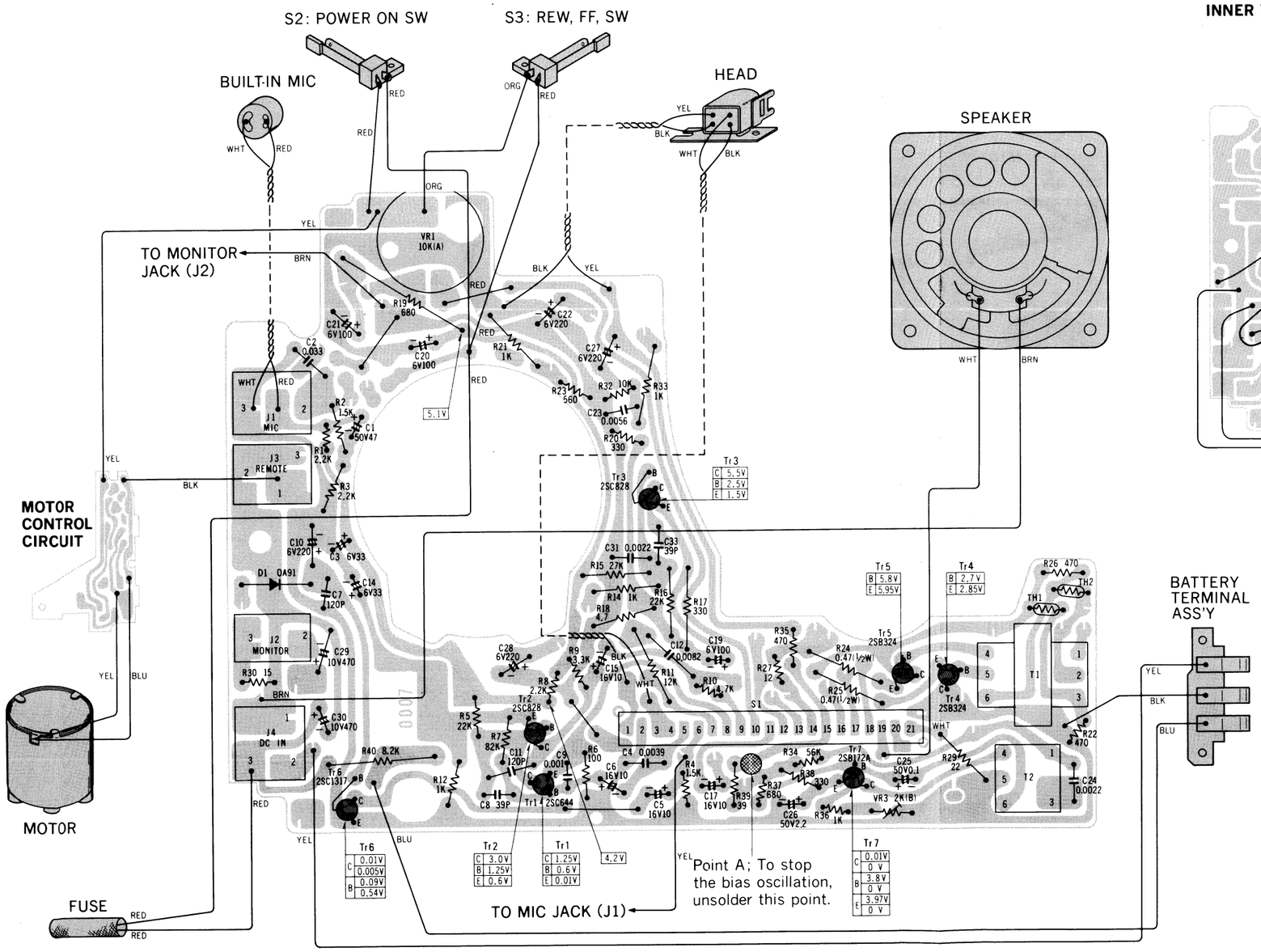
T1

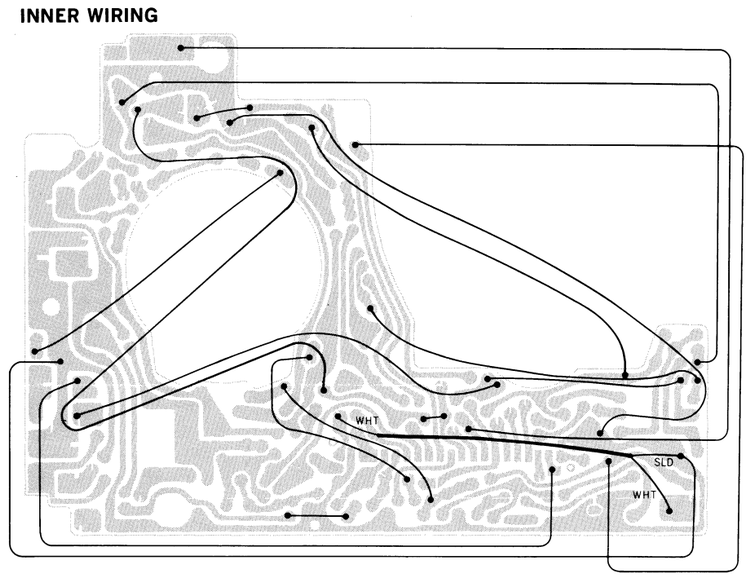


T2



WIRING CONNECTION DIAGRAM MODEL RQ-314S-E

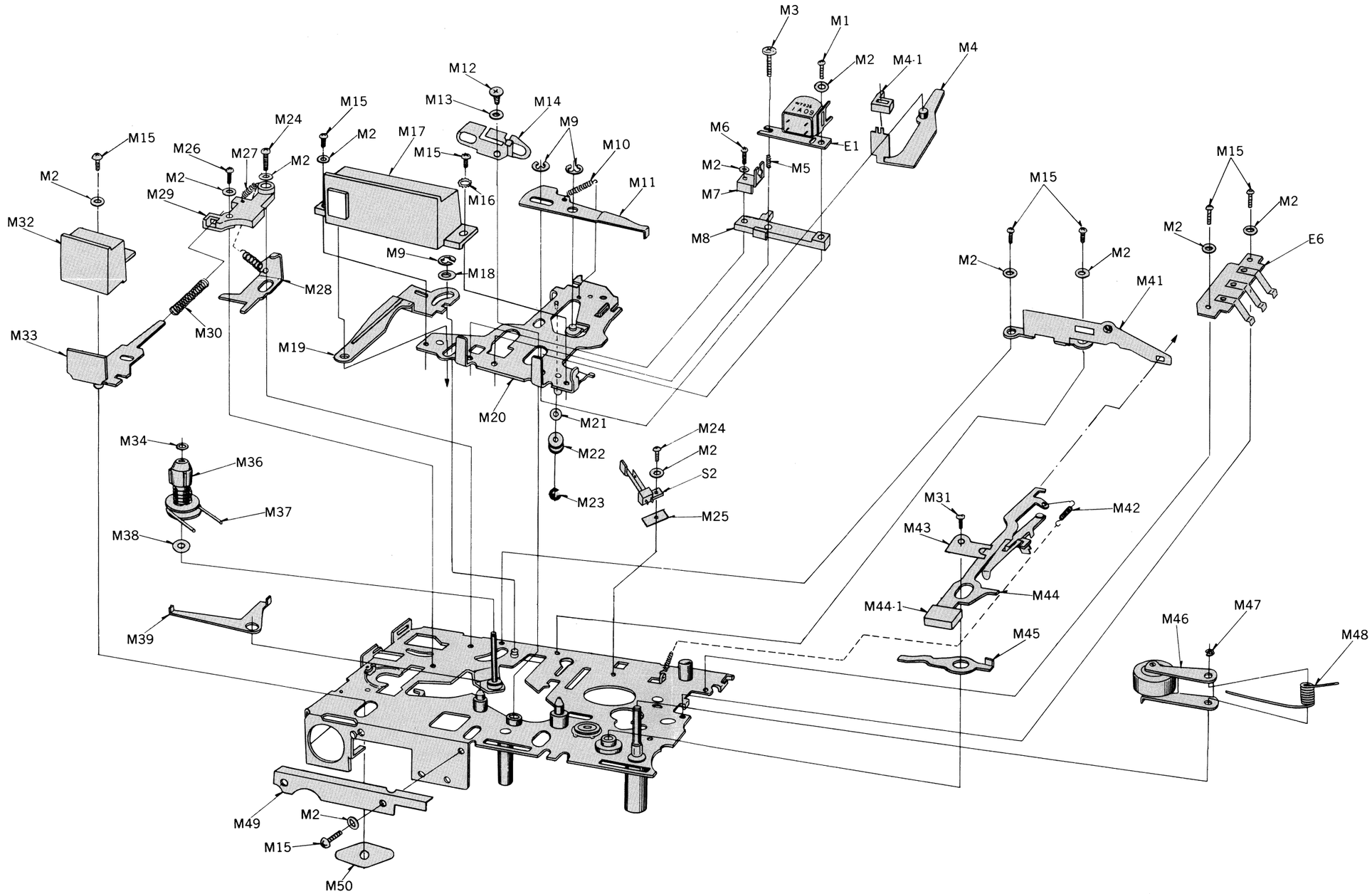


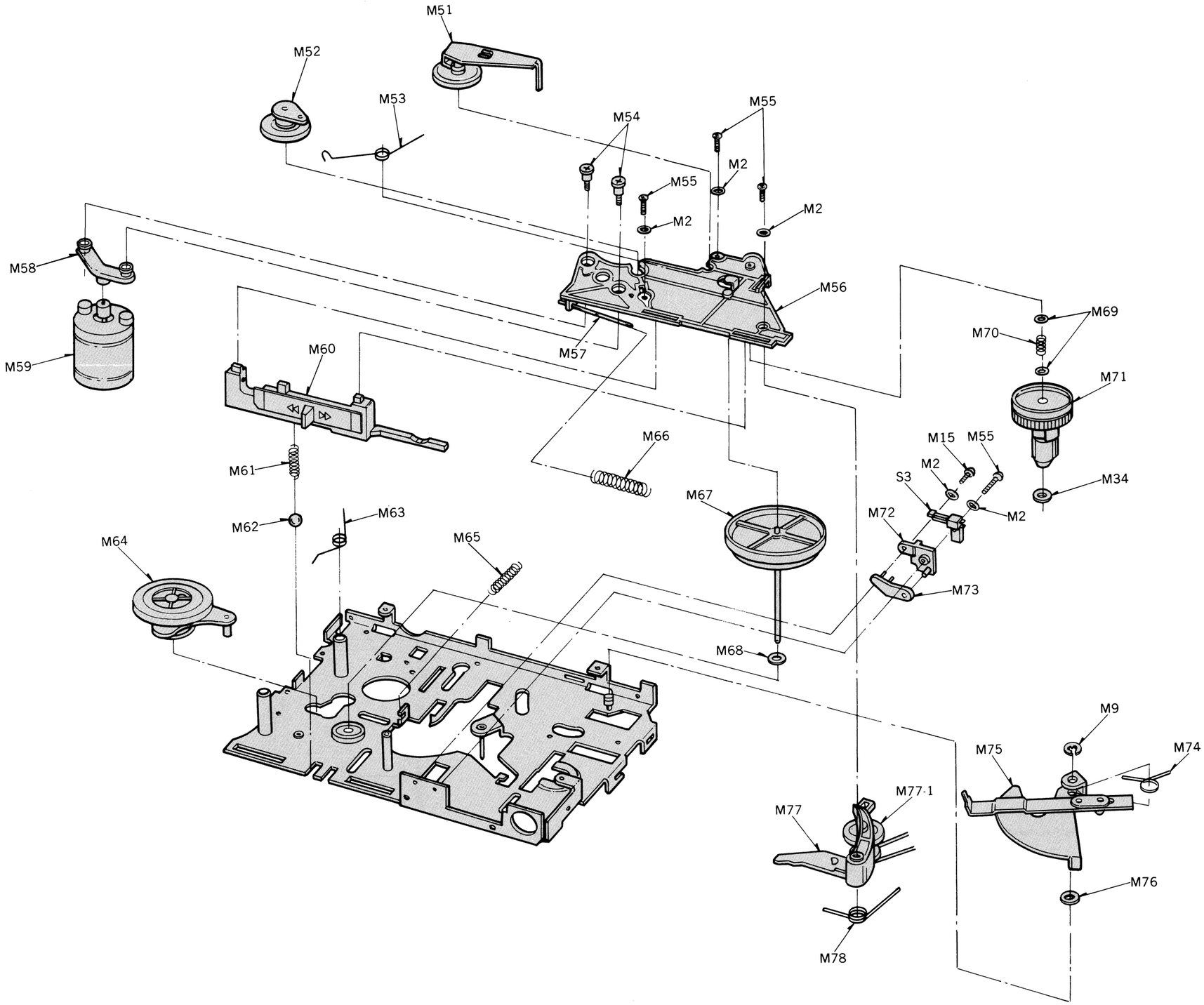


NOTE:
BLK ..... Black
BLU ..... Blue
BRN ..... Brown
GRY ..... Gray
GRN ..... Green
L. BLU ... Light Blue
NIL..... No Color Mark
ORG ..... Orange
PNK ..... Pink
RED ..... Red
SLD ..... Shield Wire
VLT ..... Violet
WHT ..... White
YEL ..... Yellow

NOTE:
The circuit shown in red on the conductor is B circuit.
Values indicated in ▭ are DC voltage between the chassis and electrical parts.
The upper values should be measured during recording and the lower values during playback.

EXPLODED VIEWS




M51
M52
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M70
M71
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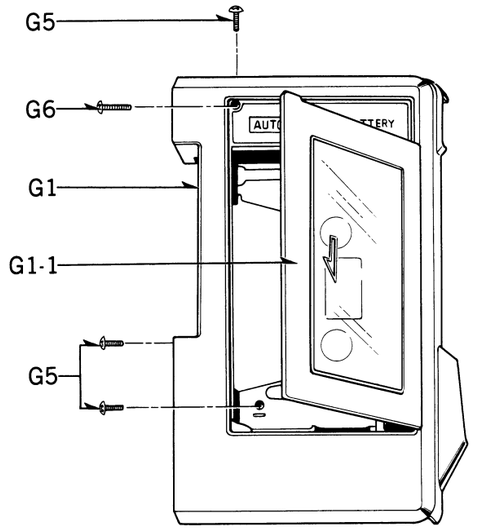
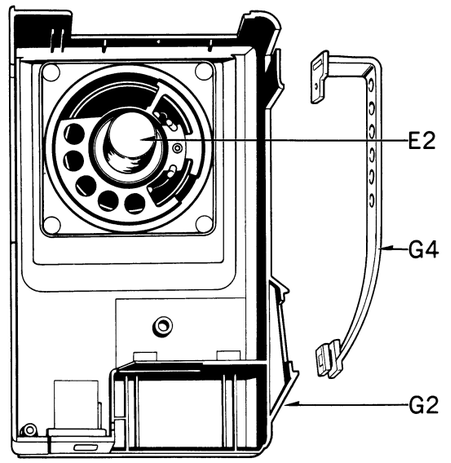
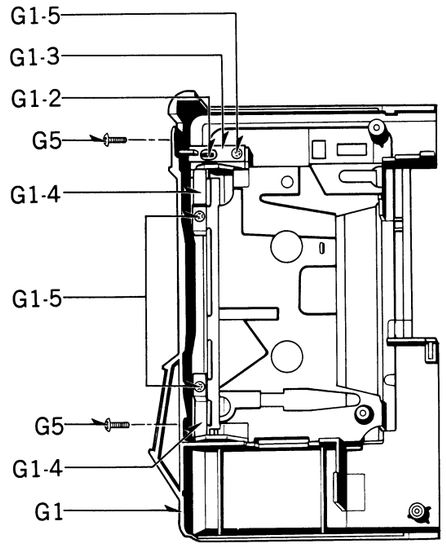
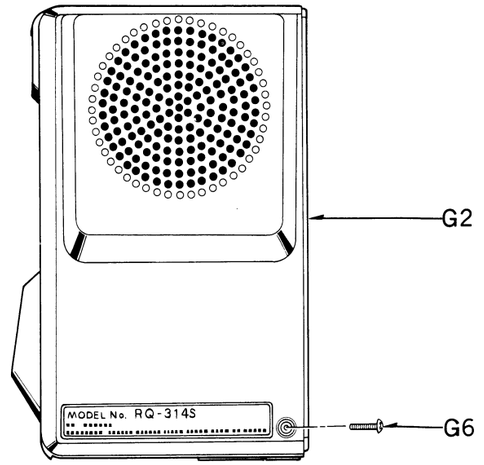
M15
M55
M2
S3
M34
M67
M72
M2
M61
M63
M62
M64
M65
M73
M68
M9
M75
M74
M77-1
M77
M76
M78

CABINET PARTS









Printed in Japan

REPLACEMENT PARTS LIST

MODEL RQ-314S-E

National Panasonic

RQ-314S-E

NOTE:

1. Be sure to make your orders of replacement parts according to this list.
2. "Ⓝ" in "Remarks" column indicates new parts.

NOTA:

1. Habrá que asegurarse que los pedidos de piezas de repuesto se hagan según esta lista.
2. "Ⓝ" marcado en la columna "Remarks", quiere decir que las piezas son nuevas.

NOTE:

1. Bien s'assutet de se conformer à la liste suivante pour les commandes de pièces de rechange.
2. " ", dans la colonne "Remarks", indique les pièces nouvelles.

HIENWEIS:

1. Bestellen Sie Ihre Ersatzteile genau nach dieser Liste.
2. "Ⓝ" in der "Remarks" Spalte bedeutet "neue Teile".

按：

1. 關於代用零件之訂購，務請依照此表而行之爲荷。
2. 「備考」(Remarks)一欄中之 "Ⓝ" 形符號標記表示該零件爲新出品。

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
		MECHANICAL PARTS		
M1	XSN2+6	Screw ⊕2×6	1	COMMON
M2	XWA2B	Spring Washer 2φ	17	〃
M3	XSN2+7	Screw ⊕2×7	1	〃
M4	QXHA0021	Auto-Stop Detect Rod	1	RQ-317S-E
M4-1	QBJA0051	Auto-Stop Detect Piece	1	〃
M5	QBCA0008	Head Adjust Spring	1	〃
M6	XSN2+5	Screw ⊕2×5	1	COMMON
M7	QTDA0003	Wire Clamper-A	1	RQ-317S-E
M8	QBJA0036	Head Table-B	1	RQ-212DAS-E
M9	XUC23FT	Stop Ring 2.3φ	4	COMMON
M10	QBTA0011A	Auto-Stop Lever Spring	1	RQ-317S-E
M11	QMLA0024	Auto-Stop Lever	1	RQ-212DAS-E
M12	XSS26+5	Screw ⊕2.6×5	1	COMMON
M13	XWE4FZ	Flat Washer	1	〃
M14	QBPA0016A	Head Base Spring	1	RQ-212DAS-E
M15	XSN2+4	Screw ⊕2×4	9	COMMON
M16	XWC2B	Lock Washer 2φ	1	〃
M17	QXB0418A	Playback/Record Button	1	Ⓝ
M18	QBW2016	Washer	1	RQ-218S-E
M19	QMRA0028	Record Rod	1	RQ-212DAS-E
M20	QXK1745	Head Base	1	Ⓝ
M21	QBW2010	Washer	1	RQ-212DAS-E
M22	QDPA0010B	Tension Pulley	1	〃
M23	XUC12FT	Lock Washer	1	COMMON
M24	XSN2+6	Screw ⊕2×6	1	〃
M25	QTWA0001	Switch Spacer	1	Ⓝ
M26	XSN2+8	Screw ⊕2×8	1	COMMON
M27	QBTA0019DA	Safety Rod Spring	1	RQ-317S-E
M28	QMLA0025	Safety Metal	1	〃
M29	QBJA0027	Safety Metal Guide	1	Ⓝ
M30	QBCA0005	Stop Lever Spring	1	RQ-454S-E
M31	XSN2+3	Screw ⊕2×3	1	COMMON
M32	QGO1276	Stop Button	1	Ⓝ

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
M33	QXL1012	Stop Lever	1	Ⓝ
M34	QBW2008	Snap Washer	2	RQ-218S-E
M36	QXD0061	Supply Reel Table	1	Ⓝ
M37	QDBA0006	Rewind Belt	1	RQ-212DAS-E
M38	QBW2012	Washer	1	RQ-317S-E
M39	QML2796	Stop Lever	1	〃
M41	QBP1619	Cassette Pressure Spring	1	〃
M42	QBTA0010	Eject Lever Spring	1	〃
M43	QBPA0017	Eject Lever Pressure Spring	1	〃
M44	QXRA0010	Eject Lever Assembly	1	Ⓝ
M44-1	QBJA0094	Eject Button	1	RQ-317S-E
M45	QMLA0018	Eject Lever Safety Metal	1	RQ-212DAS-E
M46	QXLA0074B	Pressure Roller	1	〃
M47	XUC15FT	Stop Ring 1.5φ	1	COMMON
M48	QBNA0012	Pressure Roller Spring	1	RQ-317S-E
M49	QMAA0036	Front Ornament	1	RQ-212DAS-E
M50	QBPA0007	Stop Button Spring	1	Ⓝ
M51	QXL1009	Fast Forward Roller Arm Assembly	1	Ⓝ
M52	QXL1010	Idler Lever Assembly	1	Ⓝ
M53	QBN8004	Idler Lever Spring	1	Ⓝ
M54	QHQ1229	Screw	2	RQ-317S-E
M55	XSN2+10	Screw ⊕2×10	4	COMMON
M56	QXK1744	Lower Base Plate	1	Ⓝ
M57	QMN2099	Fast Forward Lever Shaft	1	Ⓝ
M58	QBGA0010	Motor Cushion Rubber	1	RQ-317S-E
M59	MDE5F6	Motor	1	〃
M60	QXL1023	Fast Forward Lever-C	1	RQ-212DAS-E
M61	QBCA0003	Steel Ball Pressure Spring	1	RQ-317S-E
M62	QDKA0002	Steel Ball	1	〃
M63	QBNA0029	Takeup Idler Spring	1	RQ-212DAS-E
M64	QXI0074B	Takeup Idler Lever Assembly	1	〃
M65	QBTA0013	Head Base Return Spring	1	〃
M66	QBCA0004C	Fast Forward Lever Spring	1	RQ-317S-E
M67	QXF0120	Flywheel	1	Ⓝ
M68	QBW2015	Washer	1	RQ-212DAS-E

RQ-314S-E

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
M69	QWQT0005	Washer	1	RQ-443S-E
M70	QBCT0010	Back Tension Spring	1	RQ-434FLS-E
M71	QXD0060	Takeup Reel Table	1	Ⓝ
M72	QMA2818	Switch Table	1	Ⓝ
M73	QML2976	Switch Lever	1	Ⓝ
M74	QBNA0018	Record Lever Spring-B	1	RQ-317S-E
M75	QXLA0059A	Record Lever-B	1	Ⓝ
M76	QBK7122A	Washer	1	RQ-317S-E
M77	QXLA0027	Fast Wind Lever Assembly	1	RQ-212DAS-E
M77-1	QXI0032	Fast Wind Pulley	1	〃
M78	QBNA0010	Fast Wind Lever Spring	1	〃
		RESISTORS		
R1	ERD25TJ222	Carbon Resistor 2.2KΩ 1/4W	1	COMMON
R2	ERD25TJ152	〃 1.5KΩ 1/4W	1	〃
R3	ERD25TJ222	〃 2.2KΩ 1/4W	1	〃
R4	ERD25TJ152	〃 2.2KΩ 1/4W	1	〃
R5	ERD25TJ223	〃 22KΩ 1/4W	1	〃
R6	ERD25TJ101	〃 100Ω 1/4W	1	〃
R7	ERD25TJ823	〃 82KΩ 1/4W	1	〃
R8	ERD25TJ222	〃 2.2KΩ 1/4W	1	〃
R9	ERD25TJ332	〃 3.3KΩ 1/4W	1	〃
R10	ERD25TJ472	〃 4.7KΩ 1/4W	1	〃
R11	ERD25TJ123	〃 12KΩ 1/4W	1	〃
R12	ERD25TJ102	〃 1KΩ 1/4W	1	〃
R14	ERD25TJ102	〃 1KΩ 1/4W	1	〃
R15	ERD25TJ273	〃 27KΩ 1/4W	1	〃
R16	ERD25TJ223	〃 22KΩ 1/4W	1	〃
R17	ERD25TJ331	〃 330Ω 1/4W	1	〃
R18	ERD25TJ4R7	〃 4.7Ω 1/4W	1	〃
R19	ERD25TJ681	〃 680Ω 1/4W	1	〃
R20	ERD25TJ331	〃 330Ω 1/4W	1	〃
R21	ERD25TJ102	〃 1KΩ 1/4W	1	〃
R22	ERD25TJ471	〃 470Ω 1/4W	1	〃
R23	ERD25TJ561	〃 560Ω 1/4W	1	〃

RQ-314S-E

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
R24, 25	ERX12ANJ47	Wire-wound Resistor 0.47Ω 1/2W	2	COMMON
R26	ERD25TJ471	Carbon Resistor 470Ω 1/4W	1	〃
R27	ERD25TJ120	〃 12Ω 1/4W	1	〃
R29	ERD25TJ220	〃 22Ω 1/4W	1	〃
R30	ERD25TJ150	〃 15Ω 1/4W	1	〃
R32	ERD25TJ103	〃 10KΩ 1/4W	1	〃
R33	ERD25TJ102	〃 1KΩ 1/4W	1	〃
R34	ERD25TJ563	〃 56KΩ 1/4W	1	〃
R35	ERD25TJ471	〃 470Ω 1/4W	1	〃
R36	ERD25TJ102	〃 1KΩ 1/4W	1	〃
R37	ERD25TJ681	〃 680Ω 1/4W	1	〃
R38	ERD25TJ331	〃 330Ω 1/4W	1	〃
R39	ERD25TJ390	〃 39Ω 1/4W	1	〃
R40	ERD50TJ8R2	〃 8.2Ω 1/2W	1	〃
		VARIABLE RESISTORS		
VR1	EVJA2AT12A14	Variable Resistor 10KΩ (A)	1	RQ-317S-E
VR3	EVNJ0AA00B23	Semi-fixed Variable Resistor 2KΩ (B)	1	〃
		CAPACITORS		
C1	ECEA50ZR47	Electrolytic Capacitor 0.47μF	1	COMMON
C2	ECQM05333MZ	Mylar Capacitor 0.033μF	1	〃
C3	ECEA16V33	Electrolytic Capacitor 33μF	1	〃
C4	ECQM05392KZ	Mylar Capacitor 0.0039μF	1	〃
C5, 6	ECEA16V10	Electrolytic Capacitor 10μF	1	〃
C7	QCKD05121P	Ceramic Capacitor 39pF	1	RQ-317S-E
C8	QCKD05390P	〃 39pF	1	〃
C9	QCKX05102P	Titanic Capacitor 0.001μF	1	〃
C10	ECEA6V220	Electrolytic Capacitor 220μF	1	COMMON
C11	QCKD05121P	Ceramic Capacitor 120pF	1	RQ-317S-E
C12	ECQM05822KZ	Mylar Capacitor 0.0082μF	1	COMMON
C14	ECEA16V33	Electrolytic Capacitor 33μF	1	〃
C15	ECEA16V10	〃 10μF	1	〃
C17	ECEA16V10	〃 10μF	1	〃
C19, 20, 21	ECEA10V100	〃 100μF	3	〃
C22	ECEA6V220	Electrolytic Capacitor 220μF	1	COMMON
C23	ECQM05562KZ	Mylar Capacitor 0.0056μF	1	〃
C24	ECQM05222KZ	〃 0.0022μF	1	〃
C25	ECEA50ZR1	Electrolytic Capacitor 0.1μF	1	〃
C26	ECEA50Z2R2	〃 2.2μF	1	〃
C27, 28	ECEA6V220	〃 220μF	2	〃
C29, 30	ECEA16V470	〃 470μF	2	〃
C31	ECQM05222KZ	Mylar Capacitor 0.0022μF	1	〃
C33	QCKD05390P	Ceramic Capacitor 39pF	1	RQ-317S-E
		TRANSISTORS		
Tr1	2SC644	Transistor	1	COMMON
Tr2, 3	2SC828	〃	2	〃
Tr4, 5	2SB324	〃	2	〃
Tr6	2SC1317	〃	1	〃
Tr7	2SB172A	〃	1	〃
		DIODE		
D1	0A91	Diode	1	COMMON
		THERMISTORS		
TH1, 2	QVM300A	Thermistor	2	RQ-317S-E
		TRANSFORMERS		
T1	QLT3E3H	Input Transformer	1	RQ-317S-E
T2	QLB0309	Bias Oscillation Coil	1	〃
		SWITCHES		
S1	QSS7202	Slide Switch (Record/Playback Select)	1	RQ-317S-E
S2	QSB0194	Leaf Switch (Power ON/OFF)	1	RQ-218S-E
S3	QSB0195	Leaf Switch (Fast Forward/Rewind)	1	Ⓝ
		JACKS		
J1, 2, 3, 4	Refer to E8	Jack Assembly	1	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
		ELECTRICAL PARTS		
E1	WY036AZ	Record/Playback Head	1	RQ-212DAS-E
E2	EAS65P93SA	Speaker	1	〃
E3	WM034X	Built-in Microphone	1	RQ-511S-E
E4	QBGA0030	Microphone Cover	1	RQ-212DAS-E
E5	QJTA0001	Fuse	1	Ⓝ
E6	QXQA0028	Battery Terminal Assembly	1	RQ-317S-E
E7	QYTA0004	Volume Knob	1	〃
E8	QJAA0005	Jack Assembly with J1, J2, J3, J4	1	Ⓝ
		CABINET PARTS		
G1	QYMA0042K	Front Case Assembly	1	Ⓝ
G1-1	QKDA0002A	Cassette Lid	1	RQ-212DAS-E
G1-2	QBNA0028	Cassette Lid Spring	1	RQ-317S-E
G1-3	QKTA0006	Lid Spring Hanger	1	〃
G1-4	QBP1377	Lid Holder	2	Ⓝ
G1-5	XTN26+6B	Screw ⊕2.6×6	3	COMMON
G2	QYMA0048K	Rear Case Assembly	1	Ⓝ
G3	QYFA0003	Battery Case	1	RQ-212DAS-E
G4	QKHA0013	Handle	1	Ⓝ
G5	XSS2+8BV	Screw ⊕2×8 (Black)	6	COMMON
G6	XSS2+20BV	Screw ⊕2×20 (Black)	2	〃
		ACCESSORIES		
A1	RP667XE	AC Adaptor	1	Ⓝ
A2	QJP0959A	Erase Plug	1	COMMON
A3	QFT1TCANAHZ	Cassette Tape	1	RQ-312S-E
A4	RP052A	Radio Cord-E	1	RQ-317S-E
A5	QQT1183	Instruction Book	1	Ⓝ
		PACKINGS		
P1	QPNA0050	Inside Carton	1	Ⓝ
P2	QPAA0026A	Cushion	1	Ⓝ
P3	XZB18X30A05	Poly Bag	1	RQ-317S-E

RQ-314S-E

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
P4	QPSA0004	Pad	1	Ⓝ

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